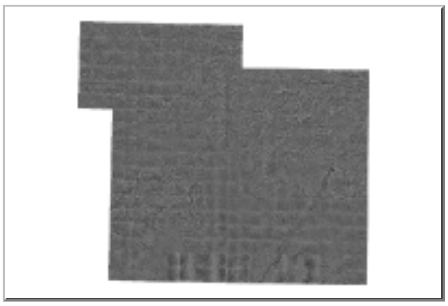
Orthophoto Mosaic for Sandoval County, New Mexico



Data format: Raster Dataset - MrSID

File or table name: Sandoval_NM_DOQQ.sid

Coordinate system: Universal Transverse Mercator

Theme keywords: digital orthophoto, digital image map, aerial photograph, rectified photograph, rectified image, orthophoto, DOQ, DOQQ

Abstract: Orthophotos combine the image characteristics of a photograph with the geometric qualities of a map. The primary digital orthophotoquad (DOQ) is a 1-meter ground resolution, quarter-quadrangle (3.75-minute of latitude and 3.75-minute of longitude) image cast on the Universal Transverse Mercator Projection (UTM) on the North American Datum of 1983 (NAD83). The normal orientation data is by lines (rows) and samples (columns). Each contains a series of pixels ordered from west to with the order of the lines from north to south. The radiometric image values are stored as 256 gray levels ranging 0 to 255.

FGDC and ESRI Metadata:

Metadata elements shown with blue text are defined in the Federal Geographic Data Committee's (FGDC) *Content Standard for Digital Geospatial Metadata (CSDGM)*. Elements shown with green text are defined in the *ESRI Profile of the CSDGM*. Elements shown with a green asterisk (*) will be automatically updated by ArcCatalog. ArcCatalog adds hints indicating which FGDC elements are mandatory; these are shown with gray text.

Identification Information:

Citation:

Citation information:

Originators: U.S. Department of Agriculture, Natural Resources Conservation Service

Title:
Orthophoto Mosaic for Sandoval County, New Mexico

***File or table name:** Sandoval_NM_DOQQ.sid

Publication date: 20010521

Geospatial data presentation form: remote-sensing image

*Online linkage:
\\Terra_dc\Navajo\NAUM_NN_Summary\DB\DOQQ\Sandoval_NM_DOQQ.sid

Description:

Abstract:

Orthophotos combine the image characteristics of a photograph with the geometric qualities of a map. The primary digital orthophotoquad (DOQ) is a 1-meter ground resolution, quarter-quadrangle (3.75-minute of latitude and 3.75-minute of longitude) image cast on the Universal Transverse Mercator Projection (UTM) on the North American Datum of 1983 (NAD83). The normal orientation data is by lines (rows) and samples (columns). Each contains a series of pixels ordered from west to with the order of the lines from north to south. The radiometric image values are stored as 256 gray levels ranging 0 to 255.

Purpose:

Digital orthophotos serve a variety of purposes, from interim maps to references for earth science investigations and. The images are useful as a layer of a geographic information system and as a tool for revision of digital graphs and topographic maps.

These data are prepared for use by the Natural Resources Conservation Service for USDA Service
Center personnel to administer agency programs.

Supplemental information:

Added a "Sandoval_NM_DOQQ.sid.aux.xml" file to the set of files that comprise this dataset. This AUX.XML identifies the Projection, Spheroid, and Datum for use of the MrSID file with ArcGIS 9.2.

***Language of dataset:** en

Time period of content:

Time period information:

Range of dates/times:

Beginning date: 19910430
Ending date: 19971013

Currentness reference:

ground condition

Status:

Progress: Complete
Maintenance and update frequency: As needed

Spatial domain:

Bounding coordinates:

West bounding coordinate: -107.665722
East bounding coordinate: -106.124853
North bounding coordinate: 36.277822
South bounding coordinate: 35.098198

Local bounding coordinates:

***Left bounding coordinate:** 257009.500000
***Right bounding coordinate:** 398974.500000
***Top bounding coordinate:** 4015350.500000
***Bottom bounding coordinate:** 3887184.500000

Keywords:

Theme:

Theme keywords: digital orthophoto, digital image map, aerial photograph, rectified photograph, rectified image, orthophoto, DOQ, DOQQ
Theme keyword thesaurus: None

Place:

Place keywords: Sandoval County, New Mexico, United States
Place keyword thesaurus: Counties and County Equivalents of the States of the United States and the District of Columbia (FIPS Pub 6-3)

Access constraints: None.
Use constraints:
These data were prepared for Official Use Only
by USDA employees as part of the Service Center
Initiative.

Point of contact:

Contact information:

Contact organization primary:

Contact person: Geospatial Data Branch
Contact organization: U.S. Department of Agriculture, Natural Resources Conservation Service

Contact address:

Address type: mailing and physical address
Address:
Federal Center, 501 W. Felix St., Bldg 23, P.O Box 6567
City: Fort Worth
State or province: Texas
Postal code: 76115
Country: USA

Contact voice telephone: (817) 509-3400
Contact facsimile telephone: (817) 509-3469

Hours of service: 8:00 am to 4:30 pm, Central

Browse graphic:

Browse graphic file name: unavailable
Browse graphic file description:
unavailable
Browse graphic file type: unavailable

***Native dataset format:** Raster Dataset
Native data set environment:
Windows NT Version 4.0 (Build 1381) Service Pack 4; ESRI ArcInfo 8.0.345

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Data Quality Information:

Attribute accuracy:

Attribute accuracy report:

Image brightness values may deviate from brightness values of original imagery due to image value interpolation during scanning and rectification processes. Radiometry is verified by USGS through a visual inspection of the digital quadrangle with the original unrectified image to determine if the digital orthophoto has the same or better quality as the original unrectified input image. Radiometric differences can be detected adjacent DOQ files due primarily to differences in photography capture dates and sun angles of aerial along flight lines. These differences can be in an image's general lightness or darkness when compared to adjacent DOQ file coverages.

Logical consistency report:

Not Applicable

Completeness report:

All DOQ image mosaics are visually inspected for completeness to ensure the area of interest is included. Original images are almost entirely cloud free. Source photography is leaf-off in deciduous vegetation regions. Void areas having a radiometric value of zero and appearing black may exist.

Positional accuracy:

Horizontal positional accuracy:

Horizontal positional accuracy report:

The horizontal positional accuracy and the assurance of that accuracy depend, in part, on the accuracy of the data inputs to the rectification process. These inputs consist of the digital elevation model (DEM),aerotriangulation control and methods, the photo source camera calibration, scanner calibration, and aerial photographs that meet National Aerial Photography Program (NAPP) standards. The vertical accuracy of the verified USGS format DEM is equivalent to or better than a USGS level 1 or 2 DEM, with a root mean square error (RMSE) of no greater than 7.0 meters. Field control is acquired by third order class 1 or better survey methods sufficiently spaced to meet National Map Accuracy Staandards (NMAS) for 1:12,000-scale products. Aerial cameras have current certification from the USGS, National Mapping Division, Optical Science Laboratory. Test calibration scans are performed on all source photography scanners. Horizontal positional accuracy is determined by the Orthophoto Accuracy (ORACC) software program for DOQ data produced by the National Mapping Division. The program determines the accuracy by finding the line and sample coordinates of the passpoints in the DOQ and fitting these to their ground coordinates to develop a root mean square error (RMSE). From 4 to 9 points are checked. As a further accuracy test, the image line and sample coordinates of the DEM corners are transformed and compared with the actual X,Y DEM corner values to determine if they are within the RMSE. Additional information on this testing procedure can be found in U.S. Department of the Interior, U.S. Geological Survey, 1993, Technical Instructions, ORACC Users Manual (draft): Reston, VA. Adjacent DOQ's, when displayed together in a common planimetric coordinate system, may exhibit slight positional discrepancies across common DOQ boundaries. Linear features, such as streets, may not be continuous. Field investigations to validate DOQ positional accuracy reliabilty are periodically conducted by the USGS, National Mapping Division, Geometronics Standards Section. DOQ's produced by cooperators and contractors use similarly approved RMSE test procedures.

Quantitative horizontal positional accuracy assessment:

Horizontal positional accuracy value: 7 meters

Horizontal positional accuracy explanation:

U.S.Bureau of the Budget, 1947, United States National Map Accuracy Standard.

Vertical positional accuracy:
Vertical positional accuracy report:
NA

Lineage:
Source information:
Source citation:
Citation information:
Originators: U.S. Geological Survey

Title:
DOQQ

Publication date: Unknown
Publication time: Unknown
Geospatial data presentation form: remote-sensing image

Publication information:
Publication place: Reston, VA
Publisher: U.S. Geological Survey

Source scale denominator: 40,000
Type of source media: CD-ROM
Source citation abbreviation:
DOQQ
Source contribution:
Panchromatic black and white (or color infra-red) NAPP or NAPP-like photographs. NAPP photographs are centered on the DOQ coverage area, the primary images making up the county mosaics.

Source time period of content:
Time period information:
Range of dates/times:
Beginning date: 19910430
Ending date: 19971013

Source currentness reference:
ground condition

Process step:
Process description:
The production procedures, instrumentation, hardware and software used in the collection of standard USGS DOQ's vary depending on systems used at the contract, cooperator or USGS production sites. The majority of DOQ datasets are acquired through government contract. The process step describes, in general, the process used in the production of USGS DOQ data sets. The rectification process requires, as input, a user parameter file to the rectification process, a digital elevation model gridded to specified bounds, projection, zone, datum and X-Y units, a scanned image file covering the same area as the DEM, ground X-Y-Z point values and their conjugate photo coordinates in the camera coordinate system, and measurements of the fiducial in the digitized image.

The camera calibration report provides the length of the camera and the distances in millimeters from the optical center to the camera's 8 fiducial marks. These marks define the field of reference for spatial measurements made from the

photograph. Ground control points acquired from ground surveys or developed in aerotriangulation, are third order class 1 or better, and meet National Map Accuracy Standard (NMAS) for 1:12,000-scale. Ground control points are in the Universal Transverse Mercator or the State Plane Coordinate System on NAD83. Horizontal and vertical residuals of aerotriangulated tie-points are equal to or less than 2.5 meters. Standard aerotriangulation passpoint configuration consists of 9 ground control points, one near each corner, one at the center near each side and 1 near the center of the photograph, are used. The conjugate positions of the ground control points on the photograph are measured and recorded in camera coordinates.

The raster image file is created by scanning an aerial photograph film diapositive with a precision image scanner. An aperture of approximately 25 to 32 microns is used, with an aperture no greater than 32 microns permitted. Using 1:40,000-scale photographs, a 25-micron scan aperture equates to a ground resolution of 1-meter. The scanner converts the photographic image densities to gray scale values ranging from 0 to 255 for black and white photographs. Scan files with ground resolution less than 1 meter or greater than 1 meter but less than 1.28 meters are resampled to 1 meter. The principal elevation data source (DEM's) are standard datasets from the National Digital Cartographic Data Base (NDCDB). DEM's that meet USGS standards are also produced by contractors to fulfill DOQ production requirements and are subsequently archived in the NDCDB. All DEM data is equivalent to or better than USGS DEM standard level 1. The DEM used in the production of DOQ's generally has a 30-meter grid post spacing and possesses a vertical RMSE of 7-meters or less. A DEM covering the extent of the photograph is used for the rectification. The DEM is traversed from user-selected minimum to maximum X-Y values and the DEM X-Y-Z values are used to find pixel coordinates in the digitized photograph using transformations mentioned above. For each raster image cell subdivision, a brightness or gray-scale value is obtained using nearest neighbor, bilinear, or cubic convolution resampling of the scanned image. The pixel processing algorithm is indicated in the header file . An inverse transformation relates the image coordinates referenced to the fiducial coordinate space back to scanner coordinate space. For those areas for which a 7.5-minute DEM is unavailable and relief differences are less than 150 feet, a planar-DEM (slope-plane substitute grid) may be used. Rectification Process: The photo control points and focal length are iteratively fitted to their conjugate ground control points using a single photo space resection equation. From this mathematical fit is obtained a rotation matrix of constants about the three axes of the camera. This rotation matrix can then be used to find the photograph or camera coordinates of any other ground X-Y-Z point. Next a two dimensional fit is made between the measured fiducial marks on the digitized photograph and their conjugate camera coordinates. Transformation constants are developed from the fit and the camera or photo coordinates are used in reverse to find their conjugate pixel coordiates on the digitized photograph. Quality Control: All data is inspected according to a quality control plan. DOQ contractors must meet DOQ standards for attribute accuracy, logical consistency, data completeness and horizontal positional accuracy. During the initial production phase, all rectification inputs and DOQ data sets are inspected for conformance to standards. After a production source demonstrates high quality, inspections will be made to 10% of delivery lots (40 DOQs per lot). All DOQ's are visually inspected for gross positional errors and tested for physical format standards.

Process date: Unknown

Source used citation abbreviation:

NA

Source produced citation abbreviation:
DOQQ

Process step:
Process description:
Digital orthophotos from USGS are used to create a county mosaic. All DOQQ's for the area of interest, typically a county, are processed using geo-referencing information from the input images to create a consolidated MrSID image. The input image may be from raw DOQQ's or TIFF formats, depending on the process requirement needs. The mosaic is compressed to a ratio of about 1:20 to save on storage requirements and to accelerate computer processing and display. All DOQQ's must be in the same UTM zone for MrSID Version 1.3 or 1.4 software to create a mosaic. In areas split by a UTM zone, DOQQ's in the lesser zone are reprojected to the dominant UTM zone using ERDAS Imagine or similar software. As appropriate, tone or range adjustments are made to minimize tone differences between individual DOQQ's and along mosaic seam lines.

Process date: 20010503

Source used citation abbreviation:
DOQQ
Source produced citation abbreviation:
MrSID

Process step:
Process description:
Added a "Sandoval_NM_DOQQ.sid.aux.xml" file to the set of files that comprise this dataset. This AUX.XML identifies the Projection, Spheroid, and Datum for use of the MrSID file with ArcGIS 9.2.

Process software and version: ESRI ArcGIS 9.2
Process date: July 9, 2007

Process contact:
Contact information:
Contact organization primary:
Contact organization: TerraSpectra Geomatics

Contact address:
Address type: mailing and physical address
Address:
2700 E Sunset Rd, Ste A-10
City: Las Vegas
State or province: NV
Postal code: 89120
Country: USA

Contact voice telephone: 702-795-8254

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Spatial Data Organization Information:

Direct spatial reference method: Raster

Raster object information:
*__Image format:__ MrSID
*__Number of bands:__ 1

__Row count:__ 128166
__Column count:__ 141965
__Vertical count:__ 1

*__Cell size X direction:__ 1.000000
*__Cell size Y direction:__ 1.000000

*__Bits per pixel:__ 8
*__Pyramid layers:__ TRUE
*__Image colormap:__ FALSE
*__Compression type:__ Wavelet

__Raster object type:__ Pixel
*__Raster display type:__ pixel codes
*__Raster origin:__ Upper Left

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Spatial Reference Information:

Horizontal coordinate system definition:
Coordinate system name:
*__Projected coordinate system name:__ NAD_1983_UTM_Zone_13N
*__Geographic coordinate system name:__ GCS_North_American_1983

Planar:
Grid coordinate system:
*__Grid coordinate system name:__ Universal Transverse Mercator
Universal Transverse Mercator:
*__UTM zone number:__ 13
Transverse mercator:
*__Scale factor at central meridian:__ 0.999600
*__Longitude of central meridian:__ -105.000000
*__Latitude of projection origin:__ 0.000000
*__False easting:__ 500000.000000
*__False northing:__ 0.000000

Planar coordinate information:
Planar coordinate encoding method: row and column
Coordinate representation:
Abscissa resolution: 1.000000
Ordinate resolution: 1.000000
Planar distance units: meters

Geodetic model:
Horizontal datum name: North American Datum of 1983
Ellipsoid name: Geodetic Reference System 80
Semi-major axis: 6378137.000000
Denominator of flattening ratio: 298.257222

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Entity and Attribute Information:

Detailed description:

*__Name:__ Band_1

Entity type:

*__Entity type label:__ Band_1
*__Entity type type:__ Table
*__Entity type count:__ 256

Attribute:

*__Attribute label:__ ObjectID
*__Attribute alias:__ ObjectID
*__Attribute definition:__
Internal feature number.
*__Attribute definition source:__
ESRI

*__Attribute type:__ OID
*__Attribute width:__ 4
*__Attribute precision:__ 0
*__Attribute scale:__ 0

Attribute domain values:

*__Unrepresentable domain:__
Sequential unique whole numbers that are automatically generated.

Attribute:

*__Attribute label:__ Value
*__Attribute alias:__ Value

*__Attribute type:__ Integer
*__Attribute width:__ 0
*__Attribute precision:__ 0
*__Attribute scale:__ 0

Attribute:

*__Attribute label:__ Count
*__Attribute alias:__ Count

*__Attribute type:__ Integer
*__Attribute width:__ 0
*__Attribute precision:__ 0
*__Attribute scale:__ 0

Overview description:

Entity and attribute overview:

For DOQ's from panchromatic source each pixel contains an 8-bit gray-scale value between 0-255. A value of 0 represents the color black while a value of 255 represents the color white. All values between 0 and 255 are represented as a shade of gray varying from black to white. For color-infrared and natural color DOQs' a digital number

from 0 to 255 will also be assigned to each pixel but that number will refer to a color look-up table which will contain the RGB red, blue and green RGB) values, each from 0 to 255, for that digital number. Areas where the rectification process is incomplete due to incomplete data (i.e., lack of elevation data, gaps), are represented with the numeric value of 0.

Entity and attribute detail citation:

U.S. Department of the Interior, U.S. Geological Survey, 1992, Standards for digital orthophotos: Reston, VA.

Softcopy in Adobe Acrobat Portable Document File (PDF) format: http://rockyweb.cr.usgs.gov/nmpstds/acrodocs/doq/PDOQ1296.PDF

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Distribution Information:

Distributor:

Contact information:

Contact organization primary:

Contact person: Geospatial Data Branch
Contact organization: U.S. Department of Agriculture, Natural Resources Conservation Service, National Cartography and Geospatial Center

Contact address:

Address type: mailing and physical address
Address:
Federal Center, 501 W. Felix St., Bldg. 23, P.O. Box 6567
City: Fort Worth
State or province: Texas
Postal code: 76115
Country: USA

Contact voice telephone: (817) 509-3400
Contact facsimile telephone: (817) 509-3469

Hours of service: 8:00 am to 4:30 pm, Central

Resource description: County Orthophoto Mosaic

Distribution liability:

Although these data have been processed successfully on a computer system at the U.S. Department of Agriculture, no warranty expressed or implied is made by the Agency regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government. The U.S. Department of Agriculture, nor any of its agencies are liable for misuse of the data, for damage, for transmission of viruses, or for computer contamination through the distribution of these data sets. The U.S. Department of Agriculture prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.)

Standard order process:

Digital form:
Digital transfer information:
Format name: MrSID
File decompression technique: compression applied
Transfer size: 541.314
***Dataset size:** 541.314

Digital transfer option:
Offline option:
Offline media: CD-ROM
Recording capacity:
Recording density: 650
Recording density Units: MB
Recording format: ISO 9660, Level 2, Mode 1

Fees: $50 per CD-ROM

Available time period:
Time period information:
Range of dates/times:
Beginning date: 19910430
Ending date: 19971013

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Metadata Reference Information:

Metadata date: 20010521

***Language of metadata:** en

Metadata contact:
Contact information:
Contact organization primary:
Contact person: Geospatial Data Branch
Contact organization: U.S. Department of Agriculture, Natural Resources Conservation Service, National Cartography and Geospatial Center

Contact address:
Address type: mailing and physical address
Address:
Federal Center, 501 W. Felix St., Bldg. 23, P.O. Box 6567
City: Fort Worth
State or province: Texas
Postal code: 76115
Country: USA

Contact voice telephone: (817) 509-3400
Contact facsimile telephone: (817) 509-3469

Hours of service: 8:00 am to 4:30 pm, Central

Metadata standard name: FGDC Content Standards for Digital Geospatial Metadata

Metadata standard version: FGDC-STD-001-1998
Metadata time convention: local time

Metadata extensions:
Online linkage: http://www.esri.com/metadata/esriprof80.html
Profile name: ESRI Metadata Profile

Metadata extensions:
*__Online linkage:__ http://www.esri.com/metadata/esriprof80.html
*__Profile name:__ ESRI Metadata Profile

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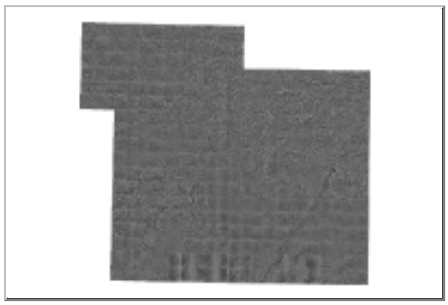
Binary Enclosures:

Thumbnail:
Enclosure type: Picture



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